



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.                                                                               | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/684,503                                                                                    | 10/15/2003  | Hitoshi Sakamoto     | 243863US3DIV        | 4590             |
| 22850                                                                                         | 7590        | 12/16/2005           | EXAMINER            |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | BUEKER, RICHARD R   |                  |
|                                                                                               |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                               |             |                      | 1763                |                  |
| DATE MAILED: 12/16/2005                                                                       |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/684,503             | SAKAMOTO ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Richard Bueker         | 1763                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 03 November 2005.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 4,5,7,11-13,20,24-28 and 33-38 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7,12,13,24-28 and 33-38 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 11 and 20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/15/03.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

Claims 4, 5, 7, 12, 13, 24-28 and 33-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 3, 2005.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 20, line 9, the phrase "the discharge plate" lacks proper antecedent basis. It is noted that the embodiment claimed in claim 20 corresponds to applicants' fig. 3, which includes "a hot metallic filament to produce a precursor within a chamber housing a substrate, the precursor being composed of the metallic component contained in the metallic filament and the chlorine contained in the raw material gas" as claimed in claim 20. This embodiment as described in applicants' specification does not include a "discharge plate". It is further noted, however, that other separate and distinct embodiments described in applicants' specification do include a "discharge plate". For example figs. 17 and 18 describe a metallic "discharge plate" 305 (see page 76, lines 1-2 of applicants' specification) that reacts with a chlorine containing plasma to form a precursor that is composed of the metallic component contained in the metallic discharge plate and the chlorine contained in the plasma. Therefore, this disclosed "discharge plate" appears to perform the same function as applicants' hot metallic filament that is claimed in claim 20. It is thus unclear what the relationship is between the "discharge plate" and "hot metallic filament" in claim 20, and

it is unclear what was intended to be claimed in claim 20 as written. In claim 20, line 13, the phrase "the heated inner wall" lacks proper antecedent basis.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As noted above, it is unclear what the relationship is between the "discharge plate" and "hot metallic filament" in claim 20, because the specification does not explain this relationship.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Claverie (5,091,209) taken in view of Inoue (JP 60-116776), Arena-Foster (6,440,494) and Bhandari (6,001,172). Claverie (fig. 1) discloses an apparatus for formation of a metal film comprising a precursor feeding device for bringing a raw material gas into contact with a hot metallic element to produce a precursor and feed the precursor into a reaction vessel; the reaction vessel housing a substrate; and a reducing gas heating device for heating a reducing gas fed into the reaction vessel. In Claverie's apparatus, the hot metallic element is a metal tube (element 22 of fig. 1), and Claverie does not discuss the use of a metallic element in the form of a filament. Inoue (see fig. 2, element 11), Arena-Foster (fig. 4, element 64) and Bhandari (see paragraph bridging cols. 2 and 3 and also col. 3, lines 14-17) all disclose vapor sources for CVD apparatus of a type analogous to that of Claverie, and they all teach that a hot metallic source element for forming the precursor gas can be in the form of a filament. It would have

been obvious to one skilled in the art to modify the apparatus of Claverie by substituting a filament-type hot metallic element for the hot metal tube of Claverie, because Inoue, Arena-Foster and Bhandari make clear that a metal filament is an alternate equivalent form of a metal source that works well for Claverie's intended purpose, which is to successfully provide reactive precursor gas to a CVD reactor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Richard Bueker*  
Richard Bueker  
Primary Examiner  
Art Unit 1763